

France's reforms: the costs of competitiveness

The country needs to re-examine the risks and rewards of its policy to create a more competitive research culture.

In 2012, France's then-president, Nicolas Sarkozy, used a cycling analogy to explain why he was determined to promote more competitiveness in the country's research system. "I love watching the Tour de France," he told *Nature*, before adding: "We've never seen the pack accelerate because those at the rear go faster; the pack accelerates when the leaders accelerate."

Sarkozy was defending plans to provide extra funding to a select group of universities, out of keeping with France's usual model of egalitarian pay and funding from the state (*Nature* **484**, 298–299; 2012). It was part of a package of measures that also included giving universities more autonomy in setting budgets, borrowing capital for investments and paying higher salaries to researchers. Sarkozy wanted more scientists to think of themselves as entrepreneurs, producing commercially successful products from their work. His government also wanted more French universities to achieve high positions in the global rankings.

Some reforms were undoubtedly overdue, and Sarkozy's vision, continued by current President Emmanuel Macron, has started to bear fruit. Macron has introduced legislation that will add €26 billion (US\$30 billion) to France's research budget over the next decade. And, as we report on page 19, Paris-Saclay University, which was formed this year, is 14th in the 2020 Academic Ranking of World Universities, marking the first time a university in France has made it into the top 20 of one of the main league tables.

Impressive accomplishment

These are noteworthy achievements. Funding increases on such a scale are rare, as is the sight of a new institution vaulting onto a ranking list. But the latter is expensive, too. To create Paris-Saclay, the government spent €5.3 billion and merged 14 separate research and higher-education institutions just outside Paris into a science super-campus. The new university hosts more than 300 laboratories and around 100 companies. A €2.9-billion metro line from Orly Airport is being built to help accommodate the needs of its 30,000-strong workforce, which is projected to increase to 80,000 in the next decade.

France's reforms are under keen scrutiny by many countries, especially those that have also made it a national policy to see their institutions in the major rankings. But in addition to the monetary costs, they must consider the human costs of creating a research culture in which early-career researchers

employed on temporary contracts are required to compete for grants. France is embarking on a journey well travelled by other countries, notably the United States and the United Kingdom. When academics must compete for jobs, funding, promotions and publications, those who meet metrics of success carry on, while many others are forced out. The toll on researchers' health and well-being, especially for those early in their careers, is sadly well documented.

It is partly for this reason that university ranking systems are coming under the spotlight and researchers are starting to ask how they can be reformed. Last month, a working group from the International Network of Research Management Societies showed in a preliminary report that when a ranking tries to capture the tapestry of the world's universities in a single composite index, it inevitably fails to fully measure the diverse ways in which institutions provide benefits to students, staff and other stakeholders (see go.nature.com/34poiqr). A single indicator also struggles to value that part of a university's mission that cannot easily be captured by conventional performance metrics – such as the well-being of research staff. One of the group's recommendations is for ranking systems to avoid producing composite indices. Instead, it says, they should adopt the dashboard approach, publishing separate numbers for the various things being measured.

Loss of security

Before the Sarkozy–Macron reforms began to take root, the French system was designed to look after staff well-being. This is one reason that the reforms remain controversial among France's research unions and opposition parties.

In the past, French universities were, at least in theory, funded according to a principle that the state should treat all institutions equally because they are all responsible for the same thing: educating the nation's young adults and producing scholarship.

Researchers, moreover, had the status of public servants and were hired on permanent contracts. Salaries, although low by the standards of developed countries, were set mostly according to a national scale, which made them transparent and predictable. As a result, early-career researchers experienced less of the precariousness that plagues the research systems of the United Kingdom and the United States, where most early-career researchers are poorly paid and have little job security.

But secure employment and the general well-being of staff tend not to be recognized. Instead, the Academic Ranking of World Universities, for example, puts weight on publications in *Nature* and *Science*, and on awards such as the Nobel prizes and the Fields medal. Unable to persuade the rankers to change their criteria, Sarkozy and Macron opted instead to change France's research culture. They did this by introducing competitive grant funding, temporary contracts for early-career researchers – and Paris-Saclay.

This decision was surprising, in part because Sarkozy is the same president who established a commission to investigate ways of creating measures of economic and social progress that value leisure activities, time spent with family and other things that contribute to quality of life but are not captured in

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composite global economic indices such as gross domestic product. Sarkozy wrote passionately in the foreword to the commission's 2010 report, *Mismeasuring Our Lives*, that it is important for societies to measure the things that matter across a range of individual numbers – the dashboard approach. He pledged France's full support for these efforts.

The creation of a new university is rightly a source of pride and achievement for France. Paris-Saclay must fulfil the hopes of a nation and the dreams of its young people. But France's government needs to take a harder look at its latest competitiveness agenda, now that researchers have had time to study the impacts of such policies elsewhere. It should strive for the best of both worlds: to produce research that benefits society, balanced with support for the well-being of those on the academic front line.

Get Africa's green wall back on track

A plan to green 7,000 kilometres of Africa's drylands is struggling to take off. Researchers must help.

The Great Green Wall of Africa, a plan to restore a 7,000-kilometre-long stretch of degraded land from Senegal in West Africa to Djibouti in the east, is a bold and ambitious idea intended to help combat drought and desertification, which currently affect around 45% of Africa's land area. Proposed 13 years ago by two of the continent's elder statesmen, Nigeria's then president Olusegun Obasanjo and Senegal's former president Abdoulaye Wade, it is even more important now, given the threat from climate change and the reliance of the continent's people on agriculture for their livelihoods.

But, so far, the project has struggled to reach key goals. Less than one-fifth of the designated land area has been restored or rehabilitated. The African Union's top decision makers don't see the green wall as a priority, and international donors seem reluctant to commit further funding. Researchers, governments and international agencies must work together better to rehabilitate this crucial scheme.

The project's focus has widened from its founders' vision because there are more ways to restore degraded land than by reforestation, such as creating communal gardens and nature reserves. But the addition of these and other measures has made the green wall more complex. It has required different ministries in individual countries to work together. That is always difficult, but it becomes even more so when two further variables are added: the African Union and the international donor community. These and other observations are confirmed in an independent assessment of the project, commissioned by the project's

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partners and published in September by the United Nations Convention to Combat Desertification (UNCCD).

The assessment report tries to look on the bright side. It says that 11 countries along the green wall have rehabilitated nearly 4 million hectares of land and created 350,000 jobs in the process. It also confirms that a broader group of 21 African countries is committed to restoring and rehabilitating 100 million hectares of land by 2030, creating 10 million green jobs. But it doesn't sugar-coat the fact that governments and donors will need to find between US\$3.6 billion and \$4.3 billion every year for the next decade if the 100-million-hectare target is to be achieved. That will be a tall order – the report calls it a “quantum leap” – considering that the project raised around \$2 billion in its first decade. But it is not impossible – and there are several key ways in which researchers can contribute.

The UNCCD report provides headline information on each country's progress – such as the numbers of plants and seedlings produced; the area of land reforested; and the numbers of people trained and jobs created. Most of these data were provided by each country. The next step should be for independent researchers – for example, members of IPBES (the Intergovernmental Science–Policy Platform on Biodiversity and Ecosystem Services) – to assess these data and publish their own reviews, to help all sides have more confidence in the data and in the monitoring process.

Funding is always a challenge in such projects. But although it might seem feasible that the 55 member states of the African Union and their international partners could raise the required amounts, nations have already committed funding to international initiatives with similar goals to those of the green wall. African countries, for example, are signatories to the Aichi Biodiversity Targets, which include a goal to reduce habitat loss and degradation. Countries have also signed up to the UN Sustainable Development Goals, which include a target of combating desertification and restoring degraded land and soil. And they are also members of the UNCCD, which has pledged to reach what it is calling “land degradation neutrality” by 2030.

The UNCCD report suggests a single trust fund could be the answer. That would work if countries and international agencies agree to pool their resources and create harmonized reporting requirements. Researchers could help here by developing a method for measuring whether countries are succeeding in meeting their green-wall goals, as well as providing a common accounting framework.

The need to restore and rehabilitate land is urgent. People in the affected countries are among the world's poorest. The overwhelming majority earn their living from agriculture or livestock production. Climate change is projected to lift average temperatures by 3–6 °C by the end of the century, compared with a late-twentieth-century baseline. More extremes of weather are expected, and these, in turn, will reduce crop yields.

The green-wall project needs international agencies to cooperate better, it needs researchers to help, and it needs the present generation of the continent's leaders to step up and take on a more visible role in championing it, just as its two founding presidents did.